

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. **(Currently Amended)** An apparatus for manufacturing particles using corona discharge, comprising:
 - a guide duct to which a first voltage is applied;
 - a discharging means of which a discharge electrode is positioned within said guide duct, ~~and which generates for generating ions through electric discharge, wherein a second voltage, higher than the first voltage, having the same polarity as the first voltage applied to said guide duct is applied to the discharge electrode;~~
 - a reaction gas supplying means for supplying reaction gases into said guide duct wherein a direction of a corona discharge electric field is substantially parallel to flow of the reaction gas;
 - a voltage applying means connected to said discharging means and said guide duct so as to generate voltage difference therebetween;
 - a heating means which is disposed on an outer surface of said guide duct for applying energy to the reaction gases so as to generate particles which are adhered to the ions generated by said discharging means;
 - a collecting means disposed to be spaced apart from outlet of said guide duct by a predetermined distance for collecting the particles
 - a supporting member which is fitted into said guide duct, with said discharging means held by said supporting member while passing through said supporting member, said supporting member being provided with a throughhole for allowing interior of said guide duct to communicate with outside of said guide duct; and
 - a reaction control gas supplying means which supplies reaction control gases through the throughhole on said supporting member to generate a lot of ions from

said discharging means and to prevent chemical reaction from occurring around the discharge electrode.

2. (Cancelled)

3. (Cancelled)

4. (Currently Amended) The apparatus as claimed in claim 1claim 3, further comprising a guide electrode which is extended to interior of said guide duct while surrounding the discharge electrode for guiding laminar flow of the generated ions.

5. (Cancelled)

6. (Original) The apparatus as claimed in claim 1, wherein said guide duct is constructed with a plurality of mutually connected and electrically insulated tubes so that a different level of voltage is applied to the respective tube.

7. (Original) The apparatus as claimed in claim 1, wherein the discharge electrode is formed out of a wire, and the wire is positioned between two guide plates, and reaction control gases are supplied between the guide plates.

8. (Cancelled)

9. (Currently Amended) An apparatus for manufacturing particles using corona discharge, comprising:

a first guide duct to which a first voltage is applied;

a second guide duct positioned at an outer side of said first guide duct and having an axis coaxial with said first guide duct;

a fourth guide duct positioned at an outer side of said second guide duct and having an axis coaxial with said second guide duct;

a discharging means of which discharge electrode is positioned within said first guide duct, ~~and which generate for generating ions through electric discharge, wherein a second voltage, higher than the first voltage, having the same polarity as the first voltage applied to said guide duct is applied to the discharge electrode;~~

a reaction control gas supplying means which supplies reaction control gases into said first guide duct to generate a lot of ions from said discharging means and to prevent chemical reaction from occurring around the discharge electrode;

a reaction gas supplying means for supplying reacting gases into said second guide duct ~~wherein a direction of a corona discharge electric field is substantially parallel to flow of the reaction gas;~~

a fuel gas supplying means for supplying fuel gases into said fourth guide duct;

a voltage applying means connected to said discharging means and said first guide duct so as to generate voltage difference therebetween;

a collecting means disposed to be spaced apart from outlet of said guide ducts by predetermined distance for collecting the particles of reaction gases adhered to the ions.

10. (Original) The apparatus as claimed in claim 9, further comprising a supporting member which is fitted into said first, second and fourth guide ducts, with said discharging means held by the supporting member while penetrating the supporting member, said supporting member being provided with first, second and fourth throughholes for allowing interiors of said first, second and fourth guide ducts to communicate with outside of said first, second and fourth guide ducts.

11. (Cancelled)

12. (Original) The apparatus as claimed in claim 9, further comprising a third guide duct positioned between said second and fourth guide ducts for supplying sheath gas therebetween.

13. – 19. (Cancelled)

20. (New) An apparatus for manufacturing particles using corona discharge, comprising:

a first electrode applied with a first voltage in the form of a guide duct;

a discharge electrode positioned within the first electrode for generating ions through corona discharge, wherein a second voltage, higher than the first voltage, having the same polarity as the first voltage is applied to the discharge electrode;

a reaction gas supplying means for supplying reacting gases into guide duct, wherein a direction of a corona discharge electric field is substantially parallel to flow of the reaction gas;

a voltage applying means connected to the discharge electrode and the guide duct so as to generate voltage difference therebetween;

a heating means disposed on an outer surface of the guide duct for applying energy to the reaction gases so as to generate particles adhered to the ions generated by the discharge electrode; and

a collecting means disposed to be spaced apart from outlet of said guide ducts by predetermined distance for collecting the particles of reaction gases adhered to the ions,

wherein

the heating means is a heater or a flame,

when the heating means is the heater, the discharge electrode is positioned inside the guide duct,

when the heating means is the flame, the discharge electrode is positioned downstream of the guide duct.